REMARKS

In response to the provisional double patenting rejections of claims 1-27 of the present application vis a vis claims 7-27 of applicant's commonly assigned co-pending application Serial Number 111/114,449 and claims 1-10, 13, 16, and 17 of applicant's commonly assigned copending application Serial Number 11/075,255, MPEP §804B.1 states, in pertinent part: "If a "provisional" nonstatutory obviousness-type double patenting (ODP) rejection is the only rejection remaining in the earlier filed of the two pending applications, while the later-filed application is rejectable on other grounds, the examiner should withdraw that rejection and permit the earlier-filed application to issue as a patent without a terminal disclaimer." Based on the foregoing the Examiner should withdraw the double patenting rejection of the present application upon a finding of allowance of all claims in this application for reasons other than double patenting. Applicant will, if necessary, deal with the issue of the claims of Serial Number 11/075,255 and Serial Number 11/114,449 being obvious over the claims of this application in the prosecution of the '255 A. and '449 applications.

Applicant traverses the rejection of claims 1-6 and 9-16 as being obvious as a result of Durand (U.S. 5,357,358) in view of Eidenschnik (U.S.

5,729,320). General consideration of Durand patent (US 5,357,358) indicates it is quite similar to the previously considered Eguchi patent (U.S. 5,498,762). Although Durank and Eguchi use different liquid crystals (LCs) with different electrooptical switching effects, flexoelectric in nematic liquid crystal (Durand) and ferroelectric in smectic C (Eguchi) both effects are based on azimuthal switching provided by electrical polarization effects and the surfaces of both substrates have symmetrical alignment conditions. The Eidenschink patent (US 5,729,320) was previously considered in connection with the Crawford patent and is similar to Tanako (Japanese Application 405061021A). Eidenschink also uses nanoparticles and switches between transparent and light scattering states. Based on this similarity of Eguchi and Tanako with Durand and Eidenschink, the combination of Durand and Eidenschink patents does not lead one of ordinary skill in the art to the bistable nematic device of claims 1 and 16 for the same reasons as advanced in applicant's previously submitted Declaration regarding the Eguchi and Tanako patents. In other words, the different constructions and electro-optical effects of the devices disclosed by Durand and Eidenschink would not lead one of ordinary skill in the art to combine them for the same reasons one of ordinary skill would not have combined Egulchi and Tanako.

In response to item 5 of the Office Action, the Durand device has a different operational principle and alignment arrangement on the substrates thereof. Each of the substrates has two alignment directions (abrasions). Due to these double specific alignment arrangements in the Durand device, the LC molecules switch from one state to another due to flexoelectric polarization. The switching is between azimuthally distinguished planar stable states in response to opposite polarity pulses. In comparison, claim 7 of the present application requires the molecules to switch between planar and homeoplanar states.

The Eidenschink device is different from the Durand device because of the construction, and electro-optical effects thereof. The Eidenschink device switches between a light scattered state and a vertical transparent state, stabilizing by a network of nanoparticles in the cell volume. There is no indication of a charging effect of nanoparticles or electromigtation across the cell. Further, the Eidenschink device does not exhibit fully electrically controlled bistable switching. While the device is able to switch electrically to the vertical state by applying an electrical pulse, switching back to the scattering state is possible only by applying a mechanical force or by irradiation of electromagnetic waves or by increasing temperature (column 2, lines 30-39, claims 25, 26, 27, 39, 40, 41). Applicants agrees

that the combination of the Durand and Eidenschink devices could provide bistability between the transparent and the scattering states, but does not agree that one of ordinary skill would have combined them because, as in the previously proposed combination of the Eguchi and Tanako devices, the use of polarizers with a scattering effect leads to a poor optical effect. Consequently, one of ordinary skill in the liquid crystal art would not have modified the Durand et al. device as a result of the disclosure in the Eidenschink patent to form a bistable device with an orientational effect that enables modulation of polarized light due to reorientation of the LC molecules between planar and vertical states.

The Durand and Eidenschink patents describe different devices with different substrate geometries, different operational mechanisms, based on different electroptical effects. Because of these differences, one of ordinary skill in the art would not have combined them to attain the bisable nematic device of claims 1 and 16.

Regarding the claim 14 requirement for a polarizer for distinguishing between different optical states, the Durand device does switch polarized light and uses polarizers. However one of ordinary skill in the yard would not have used polarizers in combination with the Eidenshinck device

because the polarizers would cause light scattering, leading to reduced optical efficiency of the display.

Claim 15 requires the LC to have a pleochiolc dye dissolved therein. As a result, Applicant's device employs non obvious effect of nanoparticles electrical charging in the LC medium. The combination enables eloctromigration of the nanoparticles in response to the applied DC voltage pulse to the selected surface, to provide suitable stabilization of LC orientation on the surface. The surface charge of solid nanoparticles very strongly depends on the properties of liquids; in the case of claim 15, the properties of nematic LC. Although, the nanoparticles in the device of claim 15 that are suspended in a pure nematic LC exhibit an electrical charge, it is not obvious that the mixture of claim 15 will cause the same effect. The device of claim 15 provides an optical effect with one polarizer or without the polarizers.

Applicant traverses the rejection of claims 7 and 8 as being obvious as a result of Durant and Eidenschink and further in view of Brown (U.S. 6,549,256). The Brown device is not bistable, and uses an LC with negative dielectric anisotropy and specific alignment arrangements of the substrates to provide what is alleged to improve contrast and faster response time. Brown uses a specific two layered alignment, including a

first layer with preferable azimuthal alignment on which is placed a second layer for providing homeotropic alignment (column 2, lines 44-55). The azimuthal profile is mainly provided by a relief grating structure as shown in Figs. 11a, b, and c. Brown's use of a liquid crystal with negative dielectric anisotropy is necessary because the electrical field causes the LC molecules to switch from the homeotropic alignment to the planar alignment. For some amplitudes of the electric field, the LC molecules are aligned along the azimuthal direction of the grating. Consequently, the cell can be activated to the twisted state (column 5, line 42-55). One of ordinary skill would not have modified the Examiner's proposed combination of Durand and Eldenschink as a result of Brown because Durand must use a positive LC and Bryan Brown a negative LC. As a result, the proposed combination does not lead to a workable device. Also, the Eidenshink device uses a positive LC and light scattering effect. Thus, the combination of these devices would lead to a device with a scattering effect having poor optical effects, but not to devices having a first surface alignment that induces planar alignment and a second surface alignment that induces homestropic alignment (claim 7) or planar surface alignments at substantially 90° to each other (claim 8).

Because the Brown device works in different ways and has a different construction from the Durand and Eidenschink devices, one of ordinary skill would not have modified the Examiner's proposed Durand and Eidenschink cell to include the features of the Brown device.

Claims 28-31 have been added to provide applicant with the protection to which he is deemed entitled. The subject matter of these claims, that is not rendered obvious by the previously applied art, is found in Figure 1 of the application and paragraphs 0052-0055 of the specification, that is, the paragraphs immediately after the heading entitled DETAILED DESCRIPTION OF THE DRAWINGS.

In view of the foregoing, allowance is in order.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 08-2025 and please credit any excess fees to such deposit account.

Respectfully submitted,
David SIKHARULIDZE

Allan M. Lowe
Registration No. 19,641

Customer Number: 22429
1700 Diagonal Road, Suite 300
Alexandria, Virginia 22314
(703) 684-1111
(703) 518-5499 Facsimile
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AML/tal